

The Omega 7 as a Health Strategy for the Skin and Mucous Membranes

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Received: March 11, 2019; **Published:** May 28, 2019

Abstract

The term omega corresponds to the twenty-fourth letter of the Greek alphabet and is represented by the symbols Ω (capitalized) and ω (lowercase). Thus, to refer to omegas 3, 6 and 9 it is common to find the symbols ω -3, ω -6 and ω -9, respectively. Although these three types of fatty acids have been widely studied, this article reviews some of the studies conducted with Omega 7, the least known of the omegas, and its involvement in the health of the skin, mucous membranes and cardiovascular prevention, as well as its main sources of obtaining.

Keywords: Omega 7; Health Strategy; Skin; Mucous Membranes

The importance of fats in human nutrition

Fats in food have had a dubious reputation until recently, but nowadays their consideration has changed thanks to the scientific community. Thus, their different types have been cataloged, in a very general way, in saturated and unsaturated fats, relating each of the fatty acid families with different indications and recommendations regarding their intake.

Lipids are organic molecules that are characterized by not being soluble in water (although they are soluble in organic solvents such as benzene or ether).

Within lipids we are talking about fats (normally solid at room temperature and of animal origin) and oils (liquid at room temperature and generally of vegetable origin). That is to say, and being rigorous, that the concept lipids includes oils and fats, although these terms are used colloquially as synonyms [1].

Among its functions, lipids constitute the most important energy reserve of the organism and also act as a thermal insulator. In addition, they facilitate the absorption and transport of fat-soluble vitamins (i.e. soluble in fats, vitamins A, E, D and K) and fulfill other structural, immunological or mediating functions of inflammation [2]. Therefore, fats are essential and fundamental to health.

Classification of fatty acids

In general, this heterogeneous group of molecules is divided into "saturated fats" and "unsaturated fats": Saturated fatty acids (SFA) are endogenously synthesized (the human body is capable of manufacturing them in a certain amount) and, although they are necessary for some physiological and structural functions, in terms of external intake they are required in small quantities. On the other hand, trans fatty acids (TFA) almost always come from the intake of industrial foods that have been hydrogenated and have no known health benefits [3].

A direct relationship has been found between the intake of AGS and AGT and the increase of total cholesterol and LDL cholesterol, increasing the latter in turn the risk of coronary heart disease and some types of cancer [4,5]. Therefore, the amount of these types of fats in the diet should be minimal or none.

On the contrary, it is necessary to bet on the so-called unsaturated fatty acids (AGI). Within these we find the monounsaturated fatty acids (AGM) that are characterized by having a single double bond in their biochemical structure. Its main representative is oleic acid (main Omega 9), present in olive oil. And the polyunsaturated fatty acids (AGP), which have two or more double bonds in their chemical structure and are found mainly in seed oils, nuts or blue fish. To this last group belong the famous Omega 3 and Omega 6.

Several studies have shown that IGA are beneficial for health, especially cardiovascular, since they reduce LDL cholesterol levels and increase the content of HDL cholesterol levels, considered the “good” cholesterol [6,7].

This is why it is so important to incorporate monounsaturated and polyunsaturated fatty acids into the diet in adequate amounts, especially emphasizing the role played by omega 3, 6 and 9 in health [8]. Within a balanced diet it is suggested that, in the daily lipid intake, the saturated fatty acids do not exceed 7% of the total energy consumed, the polyunsaturated fatty acids are between 7 and 10% and the monounsaturated fatty acids between and 18% [9].

But at this point, why does not anyone talk about omega 7?

The omega that nobody speaks

For decades, countless clinical studies have been carried out to demonstrate the benefits of omega fatty acids, especially for cardiovascular and cerebral health [10]. Therefore, to achieve an adequate balance of omega 3, 6 and 9 acids, it is so important to consume blue fish, unrefined vegetable oils and nuts [11].

But the “family member” nobody talks about, the omega 7, has also aroused the interest of the scientific community in recent years, which has demonstrated its benefits for the health of the skin and mucous membranes, as well as its ability to improve sensitivity to insulin and to prevent cardiovascular diseases, among others [12-14].

Sources of obtaining omega 7

Omega 7 (or palmitoleic acid) is a monounsaturated fatty acid that is part of the natural structure of the skin and mucous membranes of the body and, although not considered essential, its intake offers broad health benefits. Including it in the diet is not always easy, since it is found only in certain foods and in small quantities, although it is not impossible either. Thus, we find it in fish such as anchovy or salmon, in Macadamia nuts and in avocado, as well as in olive oil and other vegetable and marine oils (such as cod liver oil).

But undoubtedly one of the largest known natural sources is the fruit of the sea buckthorn (*Hippophae rhamnoides*), also known as “sea buckthorn”. From the berries of this plant you get an oil that is characterized by a unique content of fatty acids compared to other vegetable oils. In particular, this oil contains an extraordinary richness of omega 7 [15]. In addition, it is also a source of numerous vitamins and bioactive components such as flavonoids and carotenes, so it is a promising natural remedy for reducing cardiovascular risk and other health problems such as inflammatory diseases or diabetes [16].

We are facing one of the oldest plants with historical references both in the Tibetan tradition and in Traditional Chinese Medicine (TCM) in terms of its use as a general tonic and for the healing of wounds, ulcers and as a local anti-inflammatory [17]. Nowadays, it is one of the most used sources in the elaboration of omega 7 based food supplements. And, beyond its traditional use, science has demonstrated the wide benefits of the fruit of sea buckthorn as a source of this fatty acid monounsaturated, palmitoleic acid.

Demonstrated benefits of omega 7

Studies show that the consumption of omega 7 (ω -7) improves the hydration of the mucous membranes (ocular, buccal, vaginal ...). It also regenerates the skin, and in cases of metabolic syndrome favors the increase of HDL cholesterol levels and helps to improve insulin sensitivity [18].

For cardiovascular health

Omega 7 can benefit cardiovascular health specifically in the treatment of metabolic syndrome. This pathology is characterized by the accumulation of adipose tissue around the viscera, dyslipidemia, hypertension and by high concentrations of fasting plasma glucose,

in addition to an elevation of inflammatory markers [19]. But adequate changes in diet can reduce these symptoms. Among them is the incorporation of monounsaturated fatty acids such as omegas 7 and 9, especially when these replace saturated fatty acids [20].

Thus, it has been shown that diets enriched with palmitoleic acid (for example with Macadamia nuts) allow a decrease in total cholesterol and LDL cholesterol [21,22]. More specifically, significant reductions have been obtained in C-reactive protein, triglycerides and LDL cholesterol and a significant increase in HDL cholesterol in patients with dyslipidemia who have received doses of 220.5 mg of omega-7 for 30 days [23].

In addition, this acid prevents insulin resistance linked to obesity and is also associated with a lower accumulation of lipids in the liver [24]. These positive results obtained through various studies open the door to the use of this “good” fat as an optimal tool to improve cardiovascular health and control blood lipids and glucose circulating.

For the health of the skin and mucous membranes

Other interesting studies on palmitoleic acid have focused on the health of the skin and mucous membranes, based on the fact that omega 7 is present in both body structures. In fact, it is known that sea buckthorn oil activates the physiological functions of the skin and reduces scars [25,26].

If applied topically relieves skin burns (caused by sun exposure or radiation therapy), irritation, sores and skin changes [27,28].

Likewise, a remission of symptoms has been observed in patients with atopic dermatitis after the administration of sea buckthorn oil for only four months [29]. But this oil is beneficial even for people without skin disorders, since it improves hydration and elasticity of the skin, reduces wrinkles and reduces inflammation [30].

And its benefits for mucous membranes have also been proven. We speak of epithelial tissues specialized in covering the ducts and cavities exposed to the environment, including the digestive organs (oral cavity, pharynx, esophagus, stomach, small intestine, colon and rectum), respiratory (nasal mucosa, trachea and bronchi), urological (urethra, bladder, ureters), the female genitalia (part of the vulva and vagina) and the inside of the eye.

These surfaces are very sensitive and if they suffer any alteration can cause health problems, as well as creating “cracks” entry of potential pathogens that can lead to infections. For this reason, although generally it is not usually paid special attention to the health of the mucous membranes, omega 7 can be a great help for their care.

According to studies, it could be useful in vaginal atrophy associated with menopause, which produces a thinning and dry vaginal mucosa. And the administration of sea buckthorn oil improves the dryness and integrity of the vaginal epithelium, so it could be a good alternative to conventional estrogen hormone treatment in women who cannot tolerate it correctly [31]. Different studies have also demonstrated the potential of this oil to prevent and cure lesions of the gastric mucosa in cases of ulcer [32].

Therefore, omega 7, both in topical application and oral ingestion, has shown its potential in the regeneration of the skin and mucous membranes and is useful in cases of atopic dermatitis, eczema, psoriasis or gastric ulcer, oral and genitourinary [33].

For the dry eye

Another of the pathologies for which the benefits of omega 7 have been demonstrated is that of the dry eye syndrome, whose incidence is progressively increasing, being one of the most frequent reasons for consultation in ophthalmology. It is characterized by the sensation of having sand in the eye and manifests with tearing, blurred vision, burning, inflammation and redness. In addition, factors such as age and the increasing use of digital screens have a negative impact on this disease [34,35].

A study carried out in 86 people with dry eye syndrome who were administered for 12 weeks an omega 7 supplement (based on sea buckthorn oil) observed a decrease in the burning sensation and redness of the eye. This result is attributed to the fact that omega 7 increases the composition of fatty acids in the tear film, which significantly reduces the symptoms of dry eye [36].

Conclusions

So far, studies conducted around Omega 7 point to multiple health benefits:

- Improves hydration and elasticity of the skin and reduces wrinkles.
- Helps wound healing and relieves burns.
- Reduces inflammation of the skin and mucous membranes.
- Relieves ulcers and gastritis.
- Improves the symptoms of dry eye syndrome.
- Reduces the dryness of the mucous membranes (vaginal, ocular, respiratory...).
- In patients with metabolic syndrome improves the lipid profile.
- Prevents insulin resistance associated with obesity.
- Favors the increase of HDL cholesterol levels and the decrease of LDL cholesterol.

And although it has not been as studied as its “relatives” (Omega 3, 6 and 9), the omega 7 must be taken into account by the scientific community. Therefore, and waiting for other research to expand what we know about him, the incorporation of monounsaturated fatty acid into his diet seems a good health strategy. You can do it through the intake of marine fish and its oils, Macadamia nuts, avocados and even taking a nutritional supplement made from the fruit of the sea buckthorn, if necessary.

Bet on omega 7 within a balanced and varied diet while reducing the consumption of saturated fats and especially hydrogenated industrial products that provide trans fatty acids. Because yesterday, today and tomorrow, the diet is and will be one of the basic pillars for health.

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Volume 14 Issue 6 June 2019

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